

CLAIMS

1. Process for producing a fuel cell or a fuel cell stack with the following steps:

a) Providing a first duplicating unit (10) with a first sealing surface (10a), and at least a second duplicating unit (16) with a second sealing surface (16a); and

b) forming at least one seal section (42) between the first sealing surface (10a) and the second sealing surface (16a);

characterized in that the step b) encompasses the following:

b1) arrangement of a template (22) between the first sealing surface (10a) and the second sealing surface (16a), the template (22) having at least one edge area (32) which is located adjacent to the seal section (42) which is to be formed; and

b2) placement of a sealing compound (40) in the area which is bordered by the first sealing surface (10a), the second sealing surface (16a) and the edge area (32) of the template (22).

2. Process as claimed in claim 1, wherein there is a plurality of duplicating units (10, 16) on top of one another for stacking a fuel cell stack, between two adjacent duplicating units (10, 16) at a time at least one template (22) at a time being provided.

3. Process as claimed in claim 1 or 2, wherein the template (22) is formed at least in part from an organic fiber material, a carbon fiber material or a corresponding composite material.

4. Process as claimed in one of the preceding claims, wherein the template (22) is completely or partially removed during and/or after formation of at least one seal section (42) and/or is changed partially or entirely in its material properties.

5. Process as claimed in one of the preceding claims, wherein the sealing compound contains dispersed components for a glass solder.

6. Process as claimed in one of the preceding claims, wherein the sealing compound (40) is subjected at least in part to a curing and/or gelling process to form at least one seal section (42). Template [sic]

7. Process as claimed in one of the preceding claims, wherein at least one seal section (42) is formed adjacent to the first recess (12) in the first duplicating unit (10).

8. Process as claimed in one of the preceding claims, wherein at least one seal section (42) is formed adjacent to the first recess (18) in the second duplicating unit (16).

9. Process as claimed in claim 7 or 8, wherein the template (22) has a first recess (24) with dimensions which are larger than the dimensions of the first recess (12) in the first duplicating unit (10) and/or larger than the dimensions of the first recess in the second duplicating unit (16).

10. Process as claimed in claim 9, wherein that the sealing compound (40) according to step 2b) is applied at least partially by way of the first recess (12) in the first duplicating unit (10) and/or by way of the first recess (18) in the second duplicating unit (16) and/or by way of the first recess (24) in the template (22).

11. Process as claimed in claim 10, wherein when the sealing compound is applied according to step 2b) a mandrel (36) extends at least partially through the first recess (12) in the first duplicating unit (10) and/or the first recess (18) in the second duplicating unit (16) and/or the first recess (24) in the template (22).

12. Process as claimed in one of the preceding claims, wherein the first duplicating unit (10) has a second recess (14) and/or the second duplicating unit has a second recess (20) and/or the template (22) has a second recess (26).

13. Process as claimed in claim 12, wherein the first recess (24) of the template (22) is connected to the second recess (26) of the template (22) by way of the first channel (28).

14. Process as claimed in claim 12 or 13, wherein application of the sealing compound according to step 2b) takes place at least in part by way of the second recess (14) in the first duplicating unit (10) and/or by way of the second recess (20) in the second duplicating unit (16) and/or by way of the second recess (26) in the template (22).

15. Process as claimed in claim 14, wherein after completion of step 2b) the sealing compound (40) present in the second recess (14) in the first duplicating unit (10) and/or in the second recess (20) in the second duplicating unit (16) and/or in the second recess (26) in the template (22) is at least partially removed again, especially using a second mandrel.

16. Process as claimed in one of the preceding claims, wherein the first duplicating unit (10) and the second duplicating unit (16) are at least temporarily compressed in the course of step b), preferably by at least one controlled force component.

17. Fuel cell stack, produced with the process as claimed in one of the preceding claims.

18. Fuel cell stack as claimed in claim 17, wherein at least two seal sections which are essentially aligned with one another in the stack direction of the fuel cell stack are connected by the sealing compound.